

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-2 (cancelled).

Claim 3 (currently amended - withdrawn): The method of Claim ~~[[1]]~~ 34, wherein:  
the disruption occurs in sub-cellular distribution of ~~a GRK~~ GRK5.

Claim 4 (cancelled).

Claim 5 (currently amended - withdrawn): The method of Claim 3, wherein:  
the disruption comprises reduction in membrane-associated ~~GRK~~  
GRK5.

Claim 6 (currently amended - withdrawn): The method of Claim 1, wherein:  
the disruption comprises increase in cytosolic ~~GRK~~ GRK5.

Claims 7-8 (cancelled).

Claim 9 (previously amended): The method of Claim 34, wherein:

the peptide comprises soluble  $\beta$ -amyloid 1-42 or 1-40.

Claim 10 (original): The method of Claim 9, wherein:

the concentration of soluble  $\beta$ -amyloid is in a nM range.

Claim 11 (original): The method of Claim 9, wherein:

the concentration of soluble  $\beta$ -amyloid is in a range of about 50 nM  
- 500 nM.

Claim 12 (cancelled).

Claim 13 (currently amended): The method of Claim ~~[[12]]~~ 34, wherein:

the brain ~~cells comprise~~ cell comprises a microglial ~~cells~~ cell.

Claims 14-33 (cancelled).

Claim 34 (currently amended): A method of detecting a disruption in normal cellular distribution of a G-protein receptor kinase 5 (GRK5) in a brain cell in vitro, comprising the steps of:

- a) estimating normal distribution of GRK5 in [[a]] the cell;
- b) treating the cell with soluble beta-amyloid peptide to disrupt normal GRK5 distribution;
- c) estimating GRK5 distribution in the cell after step b);
- d) comparing the data of steps a) and c) to detect disruption in normal GRK5 distribution.

Claim 35 (new): A method of detecting Alzheimer's pathogenesis in a transgenic mouse with increased soluble A $\beta$  or an Alzheimer's Disease patient comprising measuring the content of G-protein receptor kinase 5 (GRK5) in membrane fractions from the brain of said patient or mouse and comparing the content to that of an unaffected control, wherein a decrease in membrane content of GRK5 indicated Alzheimer's pathogenesis.

Claim 36 (new): The method of Claim 35, wherein:

the membrane fractions are obtained from microglial cells.